DRAFT

Hood Canal/Eastern Strait of Juan de Fuca Summer Chum Salmon Recovery Plan – November 15, 2005

TABLE OF CONTENTS			
Section #	Section	Page	
1	INTRODUCTION	1	
1.1	Overview	1	
1.2	The Hood Canal Coordinating Council and its Role in Salmon	2	
	Recovery Planning		
1.3	Geographic Description of the Summer Chum Salmon Recovery Planning Area	3	
1.4	The Audience for the Summer Chum Salmon Recovery Plan	6	
1.5	Relationship to other Salmon Recovery Planning Processes	7	
1.6	Organization of the Summer Chum Salmon Recovery Plan	11	
2	GOALS OF THE SUMMER CHUM SALMON RECOVERY PLAN	12	
2.1	Overall Goals	12	
2.2	Summer Chum Salmon Recovery Goals	14	
2.3	Summer Chum Salmon Conservation Initiative Objectives	19	
2.4	Summary	21	
3	THE STRATEGIC APPROACH AND MANAGEMENT	22	
	STRATEGY TO ACHIEVE THE GOALS OF THE SUMMER		
	CHUM SALMON RECOVERY PLAN		
3.1	Recovery or Extinction	22	
3.2	Guiding Principles	23	
3.3	The Recovery Management Strategy-prioritization of recovery	25	
	actions		
3.4	Management Strategy Framework	29	
3.5	Recovery Action Prioritization of Geographic Areas Within the	31	
	ESU		
3.6	Conservation Units	34	
3.7	The Conservation Unit Construct and ESU-wide Recovery	39	
3.8	Land Use and Development Potential Within the ESU	40	
3.9	Development of Policy Options and Management Strategy for	42	
	Land-use and Regulatory Programs		
4	HARVEST IMPACTS TO SUMMER CHUM SALMON	46	
4.1	Introduction	46	
4.2	Summary of SCSCI Conclusions	46	
4.3	Connections to Habitat	48	
4.4	Progress to Date	49	
4.5	Monitoring the Harvest Management Regimes	51	
4.6	Conclusions	52	
5	HATCHERIES' IMPACTS TO SUMMER CHUM SALMON	54	
5.1	Introduction	54	
5.2	Summary of SCSCI Supplementation Programs	55	
5.3	Summary of Hatchery and Genetic Management Plan Conclusions	62	
5.4	Summary of NOAA Fish Biological Opinion Conclusions	64	
J.4	LOGITHER VOLINGAA LISH DIGIGGAAA WALIOH GUHGAAAA		

i

DRAFT

Hood Canal/Eastern Strait of Juan de Fuca Summer Chum Salmon Recovery Plan – November 15, 2005

TABLE OF CONTENTS			
Section #	Section	Page	
5.5	Summary of Hatchery Scientific Review Group Conclusions	64	
5.6	Adaptive Management Expectations	65	
5.7	Hatchery Program Integration with Harvest Management Actions	66	
5.8	Summary of Hatchery Programs Producing Other Salmon Species	67	
6	OVERALL SUMMER CHUM SALMON HABITAT ISSUES	68	
6.1	Introduction	68	
6.2	Conceptual Life History of Hood Canal/Eastern Strait of Juan de Fuca Summer Chum Salmon	68	
6.3	Overview of Habitat Impacts	71	
6.4	Low Dissolved Oxygen and Summer Chum Salmon	81	
6.5	Conclusions	82	
7	EASTERN STRAIT OF JUAN DE FUCA CONSERVATION UNIT	84	
7.1	Introduction	84	
7.2	Geographic Description and Human Population Distribution	87	
7.3	Summer Chum Salmon Stocks' Description and Distribution	89	
7.4	Habitat Overview and Environmental Conditions	100	
7.5	Specific Action Recommendations	114	
8	QUILCENE CONSERVATION UNIT	127	
8.1	Introduction	127	
8.2	Geographic Description and Human Population Distribution	129	
8.3	Summer Chum Salmon Stocks' Description and Distribution	131	
8.4	Habitat Overview and Environmental Conditions	135	
8.5	Specific Action Recommendations	145	
9	HAMA HAMA-DUCKABUSH-DOSEWALLIPS CONSERVATION UNIT	152	
9.1	Introduction	152	
9.2	Geographic Description and Human Population Distribution	154	
9.3	Summer Chum Salmon Stocks' Description and Distribution	156	
9.4	Habitat Overview and Environmental Conditions	162	
9.5	Specific Action Recommendations	177	
10	LILLIWAUP CONSERVATION UNIT	187	
10.1	Introduction	187	
10.2	Geographic Description and Human Population Distribution	188	
10.3	Summer Chum Salmon Stocks' Description and Distribution	189	
10.4	Habitat Overview and Environmental Conditions	193	
10.5	Specific Action Recommendations	200	
11	UNION CONSERVATION UNIT	207	
11.1	Introduction	207	
11.2	Geographic Description and Human Population Distribution	208	
11.3	Summer Chum Salmon Stocks' Description and Distribution	210	
11.4	Habitat Overview and Environmental Conditions	214	

TABLE OF CONTENTS			
Section #	Section	Page	
11.5	Specific Action Recommendations	225	
12	WEST KITSAP CONSERVATION UNIT	232	
12.1	Introduction	232	
12.2	Geographic Description and Human Population Distribution	234	
12.3	Summer Chum Salmon Stocks' Description and Distribution	236	
12.4	Habitat Overview and Environmental Conditions	239	
12.5	Specific Action Recommendations	250	
13	ESU-WIDE RECOVERY	257	
13.1	Summer Chum Salmon Population Recovery Goals	257	
13.2	Project Actions	260	
13.3	County Programmatic Actions	261	
13.4	Other Programmatic Actions	274	
13.5	Bank armouring (bulkheading) and shoreline modifications	278	
13.6	Conclusions	281	
14	MONITORING AND ADAPTIVE MANAGEMENT	282	
14.1	Introduction	282	
14.2	Implementation Monitoring	283	
14.3	Direct Effectiveness Monitoring of Habitat Projects	288	
14.4	Cumulative Effectiveness Monitoring of Salmon Recovery	289	
14.5	Cumulative Effectiveness Monitoring of of Actions and Ambient	292	
	Monitoring of Habitat Conditions		
14.6	Land Use, Development, and Regulatory Programs	295	
14.7	Plan Integration and Adaptive Management	296	
15	IMPLEMENTATION	299	
15.1	Overview	299	
15.2	Actions for summer chum recovery	299	
15.3	Structure and mechanisms for summer chum recovery	301	
15.4	Funding summer chum recovery	314	
	REFERENCES	329	

APPENDICES

- A. Assessment of Summer Chum Performance in Hood Canal and the Eastern Strait of Juan de Fuca in relation to Habitat Conditions and Strategic Priorities for Recovery and Conservation Actions
- B. Rules and Concepts for Modeling Estuarine and Marine Habitat Effects
- C. Estimating Impervious Surface for the Summer Chum Salmon ESU Geographic Area Under Buildout Conditions
- D. Costing of the Hood Canal Coordinating Council's Summer Chum Salmon Recovery Plan

DRAFT

Hood Canal/Eastern Strait of Juan de Fuca Summer Chum Salmon Recovery Plan – November 15, 2005

- E. Toward Recovery: Clallam County Response to the Endangered Species Act Listing of and Proposed Listing of Salmonids Species in Puget Sound, the Strait of Juan de Fuca and the Pacific Coast
- F. Hood Canal Summer Chum Recovery in Jefferson County
- G. Draft Kitsap County Review of Regulations
- H. Mason County Endangered Species Act Report 2001